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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,769	09/26/2005	Niels Hald Pedersen	502424.111088	9393
29540	7590	03/11/2009		
DAY PITNEY LLP 7 TIMES SQUARE NEW YORK, NY 10036-7311			EXAMINER HAGEMAN, MARK	
			ART UNIT	PAPER NUMBER
			3653	
			MAIL DATE	DELIVERY MODE
			03/11/2009	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/530,769	<b>Applicant(s)</b> PEDERSEN ET AL.	
	<b>Examiner</b> Mark Hageman	<b>Art Unit</b> 3653	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 December 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 April 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, "further sensor device" which is an "image forming sensor" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 13-24 and 26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 26 recites the limitation "said gamma shield" in line 2. There is insufficient antecedent basis for this limitation in the claim.

5. Claims 13-24 are hybrid claim in that they claim both apparatus structure and a method for using the apparatus. "A single claim which claims both an apparatus and the method steps of using the apparatus is indefinite." See MPEP 2173.05(p)II. Here the inclusion of the language "the method further comprising at least one further sensor device. . ." renders the claims indefinite. How can a method contain a sensor? The claim limitation should be rewritten in method form such "providing at least one further sensor. . ." or detecting an image using at least one further sensor etc.

***Claim Rejections - 35 USC § 101***

6. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 13-24 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. As discussed above the claims are not

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directed to a method or an apparatus but rather an overlap of two statutory classes of invention. 35 U.S.C. 101 was drafted to set forth statutory classes in the alternative only. See MPEP 2173.05(p)II.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-9, 11, 13-21, 23 and 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,414,195 to Peterson et al. in view of US 6,922,455 to Jurczyk et al. Peterson discloses a conveyor mechanism (94) configured for conveying at least one object (c1 lines 22+) to a sorter device (c4 lines 45+); a sensor device (92) arranged such that conveyed objects are caused to be located essentially within a predetermined reading space (96); a calculator/classification unit (114) configured for receiving an electrical sensor signal representing measurement data from said sensor device and configured for generating and emitting a control signal (c4 lines 45+) to said sorter device configured for sorting conveyed objects on the basis of said control signal, characterised in that said sensor device is based on Prompt Gamma-Neutron Activation Analysis (PGNAA) and comprises a neutron source (100) configured for emitting neutrons; a moderator (102) surrounding said neutron source and said measurement space, and configured for moderating said emitted neutrons; and a detector (104)

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configured for detecting gamma radiation emitted by an object arranged within said measurement space when the object is exposed to a neutron flux with a given energy distribution, and generation of said electrical sensor signal on the basis of said detection (c9 lines 1+); and that said control signal is generated on the basis of said sensor signal. Regarding the method steps of claim 13 see above and columns 2, 4, and 8 of Peterson. Peterson does not disclose wherein the system further comprises at least one further sensor device and wherein at least one of the at least one further sensor devices is an image-forming sensor. Jurczyk discloses a PGNA system which further comprises at least one further sensor device and wherein at least one of the at least one further sensor devices is an image-forming sensor (c53 lines 50+) to gather image data so image information can be combined with neutron results to locate any hazardous materials detected and inform an operator (c53 lines 58+).

It would have been obvious to one of ordinary skill in the art at the time of applicants' invention to have modified Peterson to include at least one further sensor device and wherein at least one of the at least one further sensor devices is an image-forming sensor, as taught by Jurczyk, to gather image data so image information can be combined with neutron results to locate any hazardous materials detected and inform an operator.

-Re claims 2, 14, and 25-28 said sensor device further comprises a gamma shield (108) and/or a neutron shield (110), wherein said gamma shield is located

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between said source and said measurement space and/or wherein said neutron shield is arranged between said detector and said measurement space (figures 4 and 5).

-Re claims 3 and 15 said sensor device further comprises a gamma shield (108) arranged around said neutron source such that direct radiation of gamma from the neutron source to said detector is minimised.

-Re claims 4 and 16 said sorting system is configured for sorting a flow of waste (c1 lines 22+). Also examiners notes relative to claim 4 that the material treated does not further limit an apparatus claim, see MPEP 2115.

-Re claims 5 and 17 said detection is performed contact-free with regard to the object (figures 4 and 5).

-Re claims 6 and 18 an estimate of the amount of sample material in said measurement space is provided on the basis of gamma radiation of an elemental substance, eg hydrogen, aluminum, silicon or iron, present in the sample material in a known concentration (c9 lines 1+).

-Re claims 7 and 19 said sensor device primarily comprises carbon material as moderator (c8 lines 20+). Examiner notes that paraffin and polyethylene are both primarily carbon by weight. Examiner also notes that claim 19 is dependant from claim

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23 rather than claim 13. It is believed that possibly this is a typographical error and correction or confirmation the claim is requested.

-Re claims 8 and 20 the system is configured for receiving measurements of objects with a known classification; and that the classification unit comprises means for calculating weight factors of a number of weighted sums established by multivariable data analysis, calibration or iterative method, by which an improved set of weight factors is successively attained by incremental refining (c2 lines 63+, c6 lines 28+, and c10 lines 13+).

-Re claims 9 and 21 said control signal is provided by the classification unit on the basis of signals comprising said weight factors and said sensor signal c2 lines 63+).

-Re claims 11 and 23 said sensor signal comprises a gamma spectre representing registered gamma radiation intensity within a given photon/energy range (c10 lines 13+).

9. Claims 10 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peterson in view of Jurczyk in further view of US 7,244,902 to Popp. Peterson in view of Jurczyk fails to disclose cluster analysis is used as a step in automatic generation of suggestions for categorising sample objects on the basis of patterns in measurement data corresponding to said objects. Popp discloses cluster analysis is



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used as a step in automatic generation of suggestions for categorising sample objects on the basis of patterns in measurement data corresponding to said objects (c3 lines 43+). Examiner further notes that cluster analysis is a common technique used in classification and data analysis.

It would have been obvious to one of ordinary skill in the art at the time of applicants' invention to have modified Peterson in view of Jurczyk to include cluster analysis is used as a step in automatic generation of suggestions for categorising sample objects on the basis of patterns in measurement data corresponding to said objects, as taught by Popp and is well known in the art, as the substitution of one known data analysis technique for another known technique would have been obvious to one of ordinary skill. Examiner further notes that Popp discusses many methods including but not limited to clustering and neuronal networks.

10. Claims 12 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peterson in view of Jurczyk in further view of US 6,657,189 to Atwell et al.

Peterson discloses all the limitations of the claims except that said control signal is provided on the basis of a difference between a sensor signal and a predetermined reference spectre obtained with empty measurement space and stored in a memory unit. Atwell discloses background correction including that said control signal is provided on the basis of a difference between a sensor signal and a predetermined reference spectre obtained with empty measurement space and stored in a memory

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unit. (c3 lines 10+) for the purpose of minimizing PGNAA measurement errors (c2 lines 38+).

It would have been obvious to one of ordinary skill in the art at the time of applicants' invention to have modified Peterson in view of Jurczyk to include that said control signal is provided on the basis of a difference between a sensor signal and a predetermined reference spectre obtained with empty measurement space and stored in a memory unit, as taught by Atwell, for the purpose of minimizing PGNAA measurement errors.

### ***Response to Arguments***

11. Applicant's arguments with respect to claims 1-28 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Hageman whose telephone number is (571) 272-3027. The examiner can normally be reached on M-F 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Mackey can be reached on (571) 272-6916. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Patrick H. Mackey/  
Supervisory Patent Examiner, Art  
Unit 3653

MCH